

USB3CFTV

USB Type-C connection system for harsh environment



Description

USB3CFTV is a ruggedized solution for USB Type-C standard connectors.

Based on MIL-DTL-38999 series III type, plugs, and receptacles are mated thanks to a Tri-Start thread coupling mechanism. This solution strengthens and protects your devices against fluids, dust, shocks, and disconnection due to vibrations.

The assembly of your standard USB type-C cordset into our ruggedized plugs does not require any tool and can be easily performed on the field. In addition, reversibility for data and power transmission is achieved for both plug and receptacles.

Benefit from USB type-C flexibility to design many different data, power delivery, and video configurations with all the advantages of Amphenol Socapex know-how in ruggedized connector solutions.

Main features

Main characteristics:

- Thread coupling, MIL-DTL-38999 series III type
- Shell size 11
- Shock, vibration, and traction resistance
- No tools are required for cabling adaptation
- EMI protection: Shielding continuity
- Mating plug/receptacle cycles: 500 at least

Data transmission and Power:

- Compatible with USB3.2 Gen 1
- Fully reversible for both plug and receptacle
- Intensity: 5A max
- Voltage: 20V max
- Dielectric: Withstanding voltage: 100 VAC
- Maximum length transmission: Up to 1 m (only for cordset versions). Amplifiers to come, please consult us.

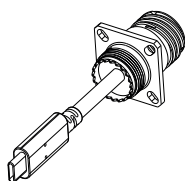
Environmental protection:

- Sealing: IP68 unmated and mated (with sealed USB3 Type-C cordset)
- Material and platings:
 - 48 h - Aluminum shell with Nickel plating ✓
 - 500 h - Aluminum shell with Black zinc nickel plating ✓
 - 500 h - Aluminum shell with Olive drab cadmium plating ✓
 - 500 h - Aluminum shell with Tin-zinc plating ✓
 - 500 h - Marine bronze shell ✓
 - 500 h - Stainless steel passivated ✓
- Shock resistance: IK06 onto mated pair
- Operating temperature: -40°C to +85°C (-40°F to 185°F)

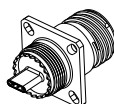
✓: RoHS compliant

Receptacle back terminations

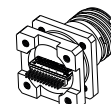
Cordset with USB Type-C male plug



USB3C male termination



USB Type-C with PCB: PC tails contacts



Markets & Applications



C5ISR, Battlefield Communication



Ground Vehicles



Naval



Applications :

- Displays, Consoles, Visions systems, Situation awareness

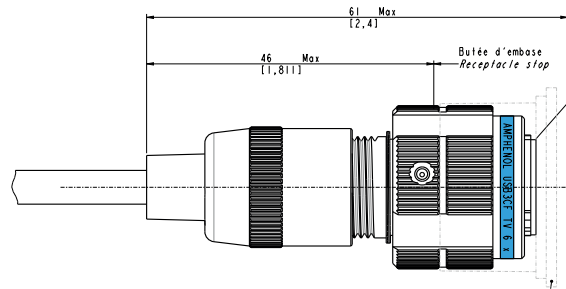
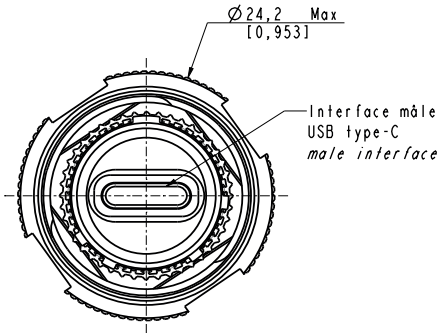


Plug

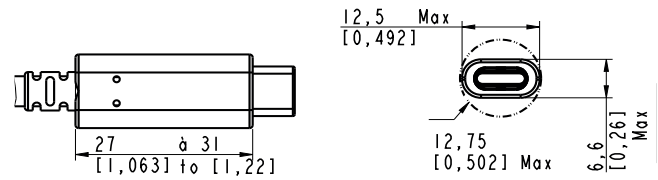
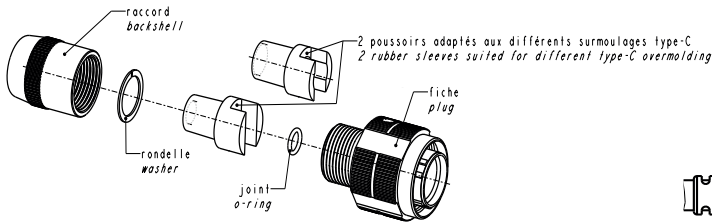
Plug without cordset – Shell type 6

Part number type: **USB3CFTV 6 X**

X: see the How to order to complete your part number



USB3 type-C plug recommended dimensions
(plug not included)



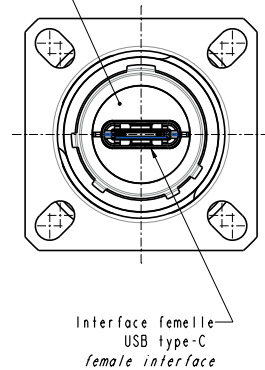
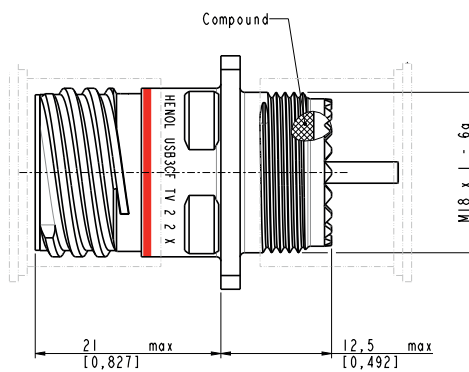
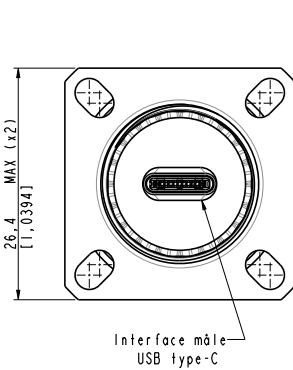
Note: USB3 Type-C cordset can be inserted in any direction.
Reversibility is managed on Receptacle side also.

Receptacles

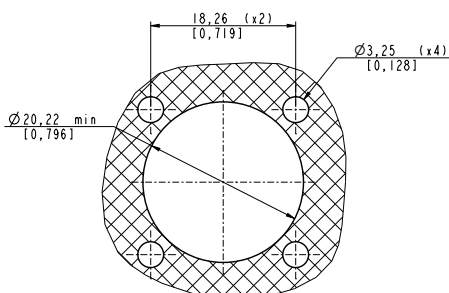
Square flange receptacle – Shell type 2 - 4 mounting holes - Male USB termination

Part number type: **USB3CFTV 2 2 X**

X: see the How to order to complete your part number



Panel Drilling



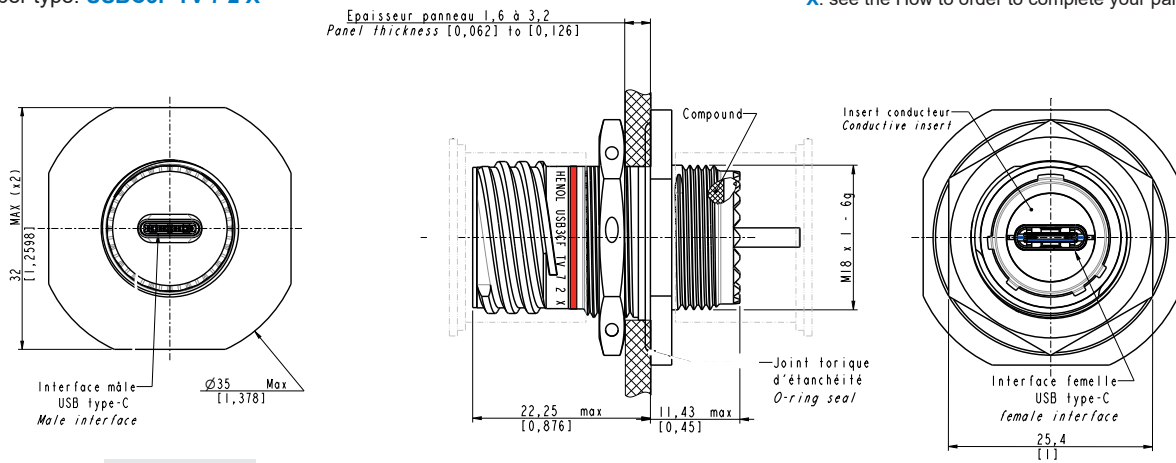
Receptacles



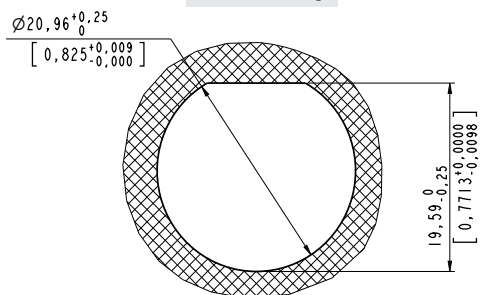
Jam nut receptacle – Shell type 7 - Male USB termination - Hexagonal nut mounting

Part number type: **USBC3F TV 7 2 X**

X: see the How to order to complete your part number



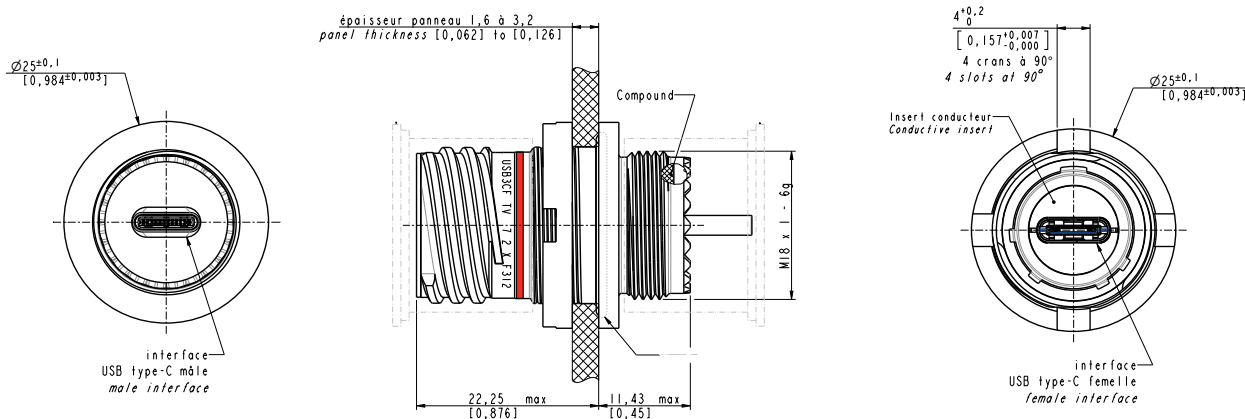
Panel Drilling



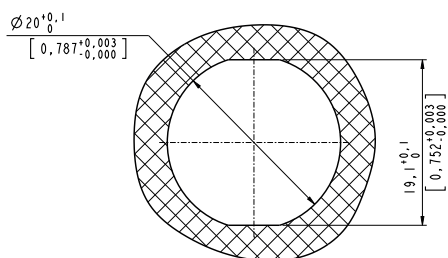
Reduced flange receptacle F312 – Jam nut shell type 7 - USB male termination - Castle nut mounting

Part number type: **USB3CFTV 7 2 X F312**

X: see the How to order to complete your part number



Panel Drilling



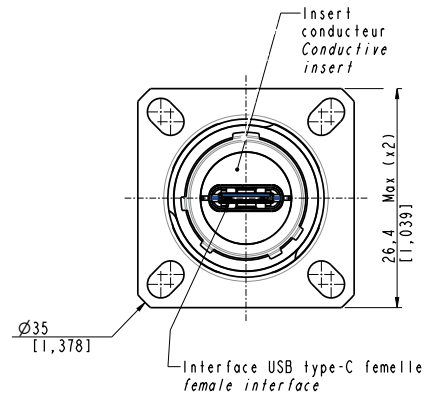
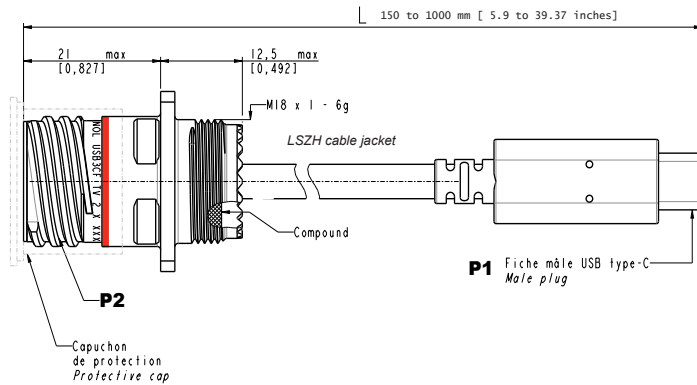


Receptacles

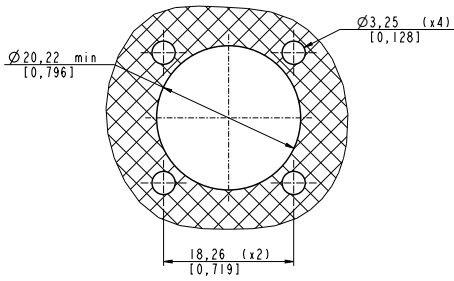
Square flange receptacle – Shell type 2 - 4 mounting holes - Cordset with USB male plug

Part number type: **USB3CFTV 2 X XXX**

X: see the How to order to complete your part number



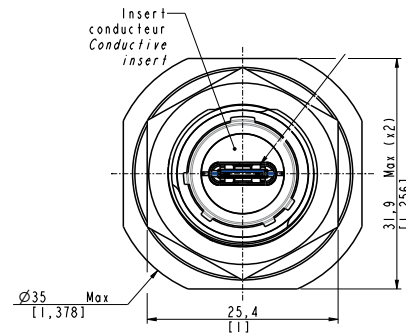
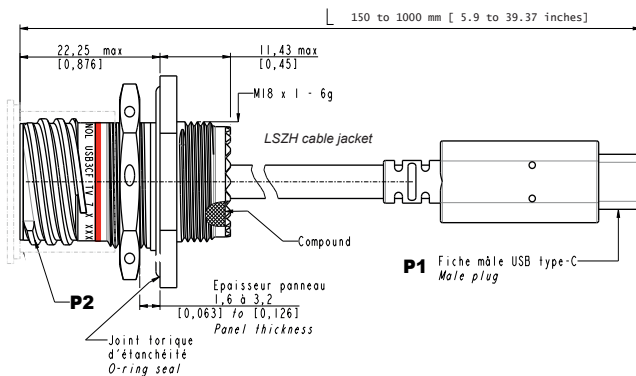
Panel Drilling



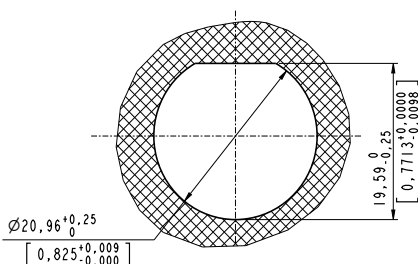
Jam nut receptacle – Shell type 7 - Cordset with USBC male plug - Hexagonal nut mounting

Part number type: **USB3CFTV 7 X XXX**

X: see the How to order to complete your part number



Panel Drilling



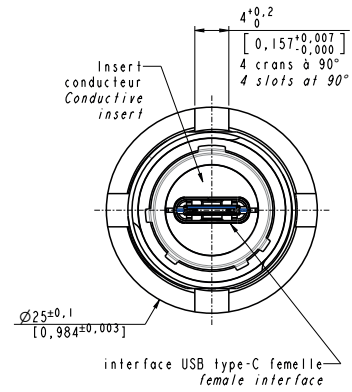
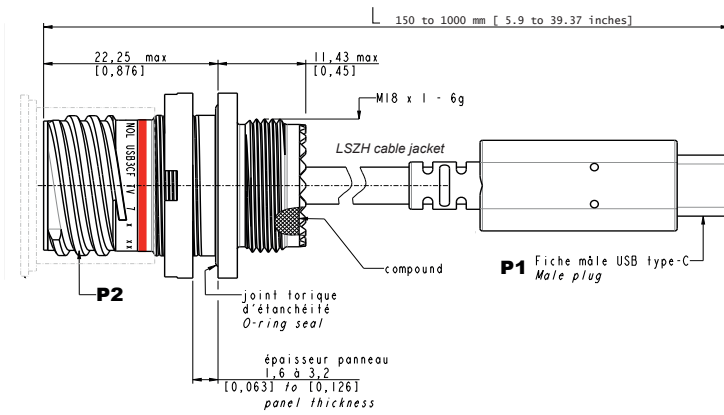


Receptacles

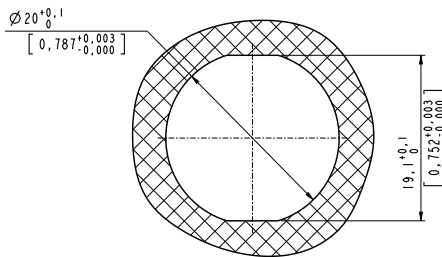
Reduced flange receptacle F312 – Jam nut shell type 7 - Cordset with USB male plug - Hexagonal nut mounting

Part number type: **USB3CFTV 7 X XXX F312**

X: see the How to order to complete your part number



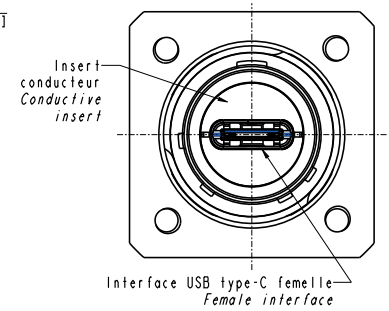
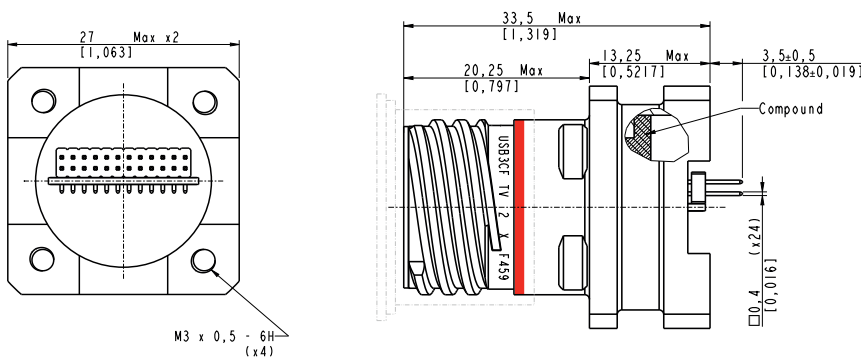
Panel Drilling



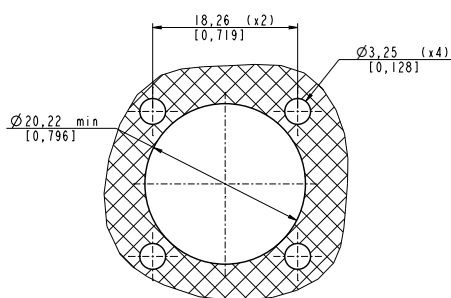
Stand-off Square flange receptacle F459 – 4 mounting holes - Shell type 2 with double flange for PCB mounting

Part number type: **USB3CFTV 2 X F459**

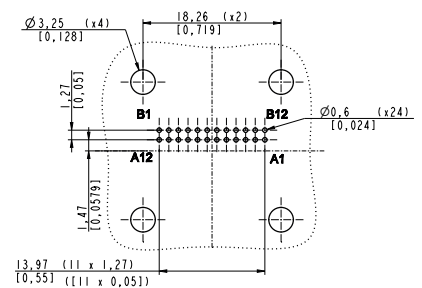
X: see the How to order to complete your part number



Panel Drilling



PCB layout



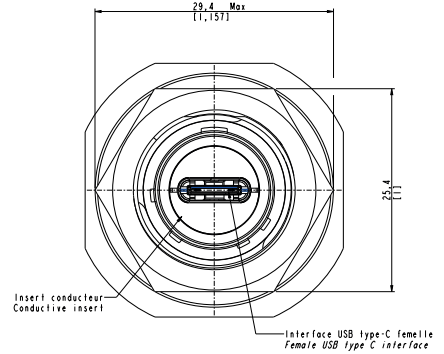
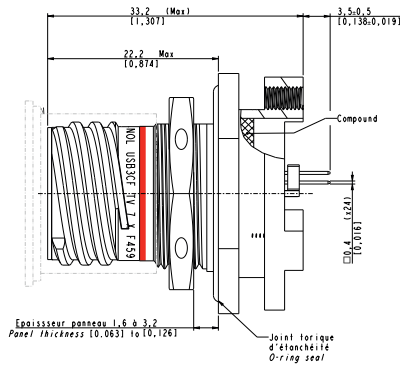
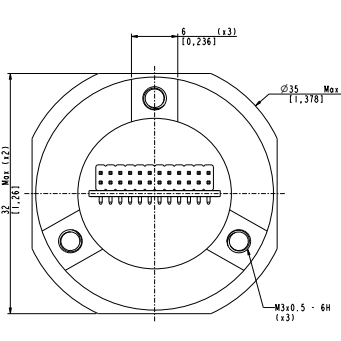


Receptacles

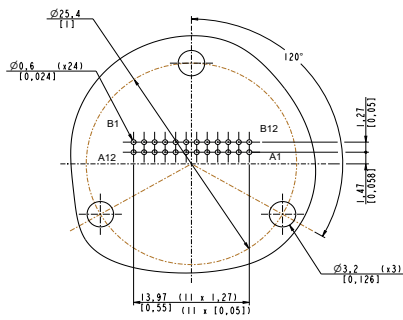
Stand-off Jam nut receptacle – Hexagonal nut mounting - Shell type 7 with double flange for PCB mounting

Part number type: **USB3CFTV 7 X F459**

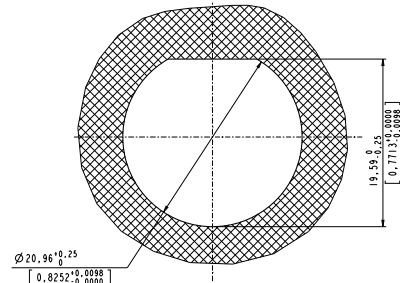
X: see the How to order to complete your part number



PCB layout



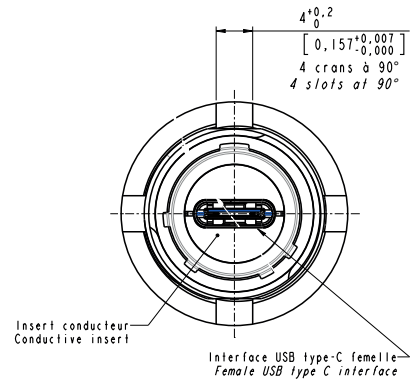
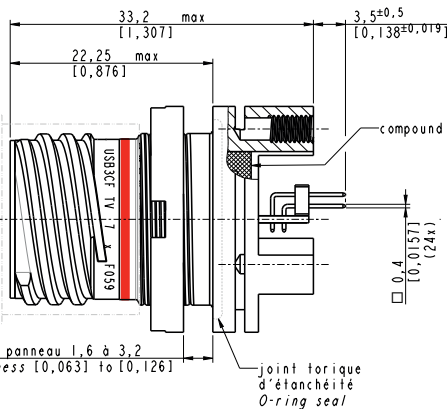
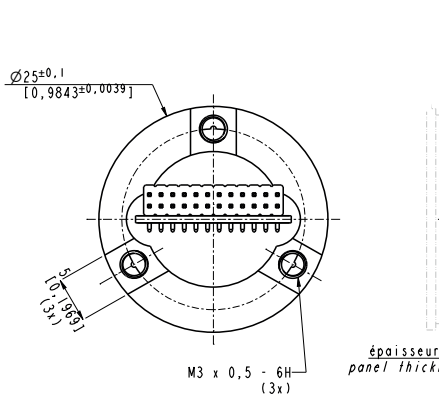
Panel Drilling



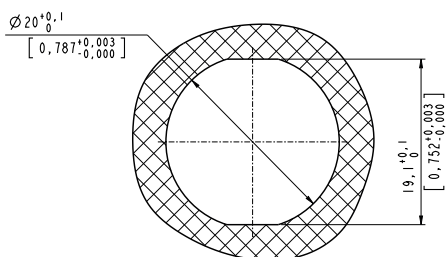
Stand-off Reduced flange receptacle F059 – Jam nut Shell type 7 - Castle nut mounting for PCB mounting

Part number type: **USB3CFTV 7 X F059**

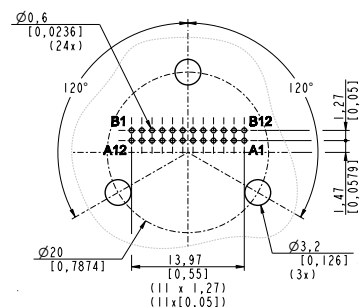
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Panel rilling



PCB layout



Accessories

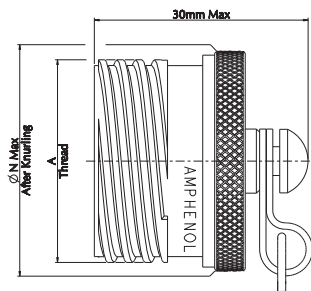


Standard protective cap

This protective cap provides you with a permanent sealing for plugs and receptacles.

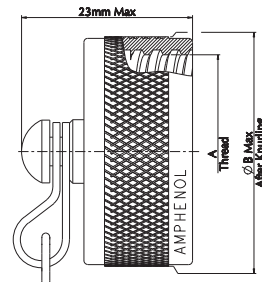
Plug caps

Part number: **USB3CFTVC6XX**



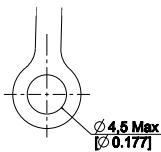
Receptacle caps

Part number: **USB3CFTVC2XX**
USB3CFTVC7XX
USBC3CFTVC7XXF057

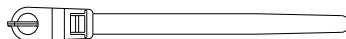


Attachment type

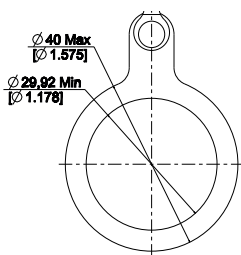
Small ring for square flange receptacle



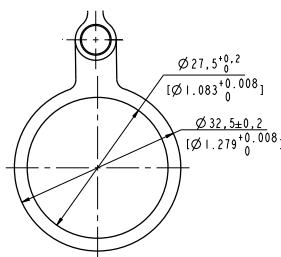
Tie wrap for plug cap



Large ring for jam nut receptacle



Ring for reduced flange jam nut receptacle

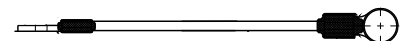


Rope material

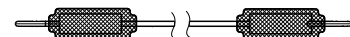
Metallic chain



Stainless steel rope



Nylon rope



Cap type	Metallic chain length (mm)	Nylon cord length (mm)	Stainless steel rope length (mm)
Receptacle caps		127 (+13,-7)	
Plug caps		160±5	

Type	Size	A Thread	ØB Max	ØN Max
Receptacle caps	11	0.750 inch Class 2B-0.1P-0.3L-TS	22.6 mm [0.89 inch]	
Plug caps	11	0.750 inch Class 2A-0.1P-0.3L-TS		20.5 mm [0.81 inch]



Other accessories

Cybersecurity solutions

Amphenol socapex has developed a dedicated solution to prevent unauthorized access to critical interconnexions. Caplocks & Pluglocks in composite material, as well as Metal CapLock versions are designed to meet this need.

Suitable part numbers for your USB3 type C connectors:

CapLock

Part number: **CapLock 11 TX**
CapLock 11 WR



PlugLock

Part number: **PlugLock 11 TX**
PlugLock 11 WR



Metal CapLock

Part number: **MCapLock X X 11**



TX : Torx Safety screw
WR : Cable seal, metal wire to cut to unlock

Caplock and Pluglock datasheet



Scan & Discover !



How to order - Connector

1. Series	2. Shell type	3. USB output	4. Material and platings	5. Cordset length	6. Deviation
USB3CFTV	7		G	100	F312

1. Series

USB3CFTV USB3CFTV series

2. Shell type

6	Plug
2	Square flange receptacle
7	Jam nut receptacle

3. USB output (only for receptacle)

2	Male USB type-C termination
Blank	Cordset or PC tail contacts

4. Material and platings

	Shell material	Shell plating
G	Aluminum	Olive drab cadmium
N		Nickel ✓
ZN		Black zinc nickel ✓
TZ		Tin Zinc ✓
BZ	Bronze ✓	
S	Stainless steel	Passivated ✓

✓: RoHS compliant

5. Cordset length (for receptacle with cordset only)

	Meters	Inch
015	0,15 m	5.9
030	0,3 m	11.81
050	0,5 m	19.69
100	1 m	39.37

6. Deviation (only for receptacle)

F459	Stand-off receptacle for PCB with PC tail contacts
F312	Reduced flange receptacle
F311	Reduces flange receptacle with safety castle nut
F059	Stand-off Reduced flange receptacle for PCB with PC tail contacts
F058	Stand-off Reduces flange receptacle with safety castle nut

Assembly video



Scan & Discover !



Examples :

Part number	Description
USB3CFTV6ZN	USB3CFTV serie, plug, aluminum shell with black zinc nickel plating
USB3CFTV72BZF312	USB3CFTV serie, jam nut receptacle with reduced flange, male USB type-C termination, bronze shell
USB3CFTV2G100	USB3CFTV serie, square flange receptacle, aluminium shell with olive drab cadmium plating, 1-meter cordset with USB-C male plug
USB3CFTV7NF059	USB3CFTV serie, jam nut receptacle, aluminium shell with nickel plating, stand-off reduced flange receptacle for PCB.

How to order - Accessories

1. Series	2. Connector type	3. Rope type	4. Shells material and finish	5. Deviation
USB3CFTVC	7	M	G	F057

1. Series

USB3CFTVC USBFTV standard protective cap

2. Connector type

6	Plug
2	Square flange receptacle
7	Jam nut receptacle

3. Rope type

Blank	Nylon cord
M	Metallic chain
MR	Stainless Steel rope - Transparent teflon jacket
BMR	Stainless Steel rope - Black teflon jacket for ZN finish

4. Shell material and finish

N	Nickel plating ✓
G	Olive drab cadmium
ZN	Black zinc nickel plating ✓

5. Deviation

Blank	Standard cap
F057	Cap for reduced flange receptacle (F312, F059)

✓: RoHS compliant

Examples :

Part number	Description
USB3CFTVC7MZNF057	USB3CFTVC protective cap for reduced flange receptacle, metallic chain, black zinc nickel plating
USB3CFTVC2MRN	USB3CFTVC protective cap for square flange receptacle, stainless steel rope with teflon jacket, nickel plating
USB3CFTVC6G	USB3CFTVC protective cap for plug, nylon cord, olive drab cadmium plating



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